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Zalt-Bommel in 1915, and the third at Amsterdam in 1920: *Platland. Eene roman van vele afmetingen.* Met Illustraties. Door Een Vierkant. Uit het Engelsch. Vierde Druk. The format and type are similar to that of the English edition,[1] which has been long out of print.

In none of these eleven editions or reprints is there any hint as to the author of the work, namely, EDWIN ABBOTT ABBOTT,[2] English schoolmaster and theologian who graduated at St. John's College, Cambridge, where he took the highest honors in the classical, mathematical, and theological triposes. It was probably for this reason that he never heard of the Dutch translation of his book until it was brought to his attention in our correspondence last March.

Dr. Abbott is now in his eighty-third year. After holding masterships in several schools he retired in 1889 to devote himself to literary and theological pursuits. He has been a prolific writer. His *Shakespeare Grammar,* 1869, a "permanent contribution to English philology," and *How to Write Clearly,* 1872, have gone through many editions. He published a dozen other books, including two anonymous religious romances, before his single mathematical publication, where "the assumption of the author is worked with wonderful consistency, and his mathematics are thoroughly sound." His numerous other books, several of which were published anonymously, down to 1917, have dealt almost wholly with religious and theological topics. Other information regarding Dr. Abbott's work may be found in *Who's Who* and in the last edition of the *Encyclopædia Britannica.* (See *1919,* 264.)

ARTICLES IN CURRENT PERIODICALS.

AMERICAN JOURNAL OF MATHEMATICS, volume 43, July, 1921: "Integral products and probability" by P. J. Daniell, 143–162; "Introduction to a general theory of elementary propositions" by E. L. Post, 163–185; "Note on Schälfli's elliptic modular functions" by A. Berry, 186–188; "Associated forms in the general theory of modular covariants" by Olive C. Hazlett, 189–198; "On (2, 3) compound involutions" by T. R. Hollcroft, 199–212.

ANNALS OF MATHEMATICS, volume 22, no. 4, June (published in September), 1921: "An analytical solution of Biot's problem" by T. Hayashi, 213–216; "Minimal surfaces containing straight lines" by J. K. Whittemore, 217–225; "An extension of Green's lemma to the case of a rectifiable boundary" by E. B. Van Vleck, 226–237; "Periodic conjugate nets" by E. S. Hammond, 238–261; "On the transformation of convex point sets" by J. L. Walsh, 262–266.

JOURNAL OF THE INDIAN MATHEMATICAL SOCIETY, volume 13, February, April, 1921: "An algebra of arithmetic functions" (concluded) by F. Hallberg, 1–8; "The group theory element of the history of mathematics" by G. A. Miller, 9–12, 57–61 [Reprinted from *Scientific Monthly,* January, 1921; see *1921,* 226]; Leaves from a lecturer's diary, 13–14; Questions and Solutions, 15–40, 62–80; "Some applications of Heawood's theorem" by N. D. Rajan, 41–44; "The theory of rational transformation" by R. Vythyanathaswami, 45–56.

MATHEMATICAL GAZETTE, volume 8, July, 1921: "Greek mathematics and science" by T. L. Heath, 289–301 [Paper read March 5, 1921, at a joint meeting of the Yorkshire Natural Science Association and branches of the Classical Association and the Mathematical Association]; "Selection in arithmetical examples" by R. S. Williamson, 302–305; Note on "The sound ranging problem" by W. Hope-Jones, 306–307; Review by G. Greenhill of H. Lamb's *Higher Mechanics* (Cambridge, 1920), 309–319; Review of R. C. Archibald's *Training of Teachers of Mathematics for Secondary Schools* (Washington, 1918), 320.

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[1] There was a second English edition containing a few extra pages, but the date of this could not be determined.

[2] There is here a play on the author's name Abbott Abbott, initials A. A. = A^2, in "By the Author A Square."

Mathematics Teacher, volume 14, April, 1921: "Elective courses in mathematics for secondary schools" [A preliminary report by the National Committee on Mathematical Requirements], 161–170; "Alignment charts" by J. Lipka, 171–178; "A reorganized course in junior high-school arithmetic" by Florence M. Brooks, 179–188; "Mathematics in the Horace Mann School for Boys" by R. Beatley, 189–193; "Values in high-school mathematics" by W. J. Ryan, 194–199; "The teaching of locus problems in elementary geometry" by F. D. Aldrich, 200–205; Communications, 206–208; Discussions, 209; Notes and News, 210–215; Book Reviews, 215–216.

Messenger of Mathematics, volume 50, January, February, 1921: "The expression of Bessel functions of positive order as products, and of their inverse powers as sums of rational fractions" by A. R. Forsyth, 129–149; "Note on the transformations of the Sylow subgroups" by G. A. Miller, 149–150; "The evaluation of certain definite integrals involving trigonometrical functions by means of Fourier's integral theorem" by E. Pollard, 151–156; "The primary aberrations of a thin optical system" by T. W. Chaundy, 157–160—March: "The primary aberrations of a thin optical system" (continued) by T. W. Chaundy, 161–165; "Notes on some points in the integral calculus" by G. H. Hardy, 165–171; "On triangular-symmetric curves" by H. Hilton, 171–176—April: "The Bernoullian functions occurring in the arithmetical applications of elliptic function transformation of the seventh order" by A. Berry, 187–189; "The dihedral angles of a tetrahedron" by T. C. Lewis, 190–192.

Monist, volume 31, April, 1921: "Einsteinian space and the probable nature of being. An adventure in metaphysics" by V. A. Endersby, 271–279.

Nature, volume 107, May 12, 1921: "Prof. W. R. Brooks" (1844–1921) by W. F. Denning, 340 [compare *1921*, 334]—May 19: "Symbols in vector analysis" by R. H. Nisbet, 362; Review of H. Hilton's *Plane Algebraic Curves* (Oxford, 1920), 388–389—June 2: Review by "J. F. T." of A. A. Robb's *Time and Space* (Cambridge, 1921), 422—June 9: "An algebraical identity $4X = Y^2 - 37Z^2$" by G. B. Mathews, 456 [Quotation: "Let p be any ordinary odd prime, and let $X = (x^p - 1)/(x - 1)$; then there is an algebraical identity $4X = Y^2 \pm pZ^2$, where Y, Z are polynomials of degree $\frac{1}{2}(p - 1)$ and $\frac{1}{2}(p - 3)$ respectively; and the sign of the ambiguity is $+$ or $-$ according as p is of the form $4n + 3$ or $4n + 1$. The cases up to $p = 31$ inclusive have been published;[1] the result for $p = 37$ has just been communicated to me by Pundit Oudh Upadhyaya, research scholar of the University of Calcutta."]—June 23: "Stellar parallax" by F. Dyson, 527–528—July 7: "What relativity in science implies" by H. W. Carr, 578–580 [review of Viscount Haldane's *The Reign of Relativity* (London, 1921)]; "The displacement of spectral lines by a gravitational field" by H. J. Priestley, 585; "An algebraical identity" by H. S. Pocklington and J. Cullen, 587 [compare Mathews's note above: gives the solutions $p = 37$ to $p = 61$, remarking that the first case where Legendre's rule fails is $p = 41$.]—July 14: Review by S. Brodetsky of L. Silberstein's *Elements of Vector Algebra* (London, 1919), 617—July 21: "An algebraical identity" by W. E. H. Berwick, 652 [First sentence: "With reference to the letters in *Nature* of June 9 and July 7 . . . on the polynomials satisfying the identity

$$Y^2(x) - (-1)^{(p-1)/2} p Z^2(x) = 4(x^p - 1)/(x - 1),$$

may I point out that $Y(x)$, $Z(x)$ are tabulated as far as $p = 101$ in Dr. Hermann Teege's inaugural dissertation, *Ueber die $\frac{1}{2}(p - 1)$ gliedrigen Gaussischen Perioden* (Kiel, Peters, 1900)?"]—August 4–11: Review of W. W. Bryant's *Kepler* (Pioneers of Progress. Men of Science, London, 1920), 713 [See *1921*, 263–264. The review: "Mr. Bryant's account of Kepler's life and work, though very readable, is not altogether satisfactory. The description of how the first two laws of Kepler were found is not clearly expressed and is incorrect in many details. When alluding to Kepler's ideas on gravity it should have been pointed out that his force was tangential to the orbit and not directed to the sun. Of the work on the harmony of the world we are told that 'the fifth book contains a great deal of nonsense.' That Kepler distinctly states that the harmony is only a mathematical conception, and that there is not really any music of the spheres, is not mentioned. The portrait given as a frontispiece is not of Kepler."]; "Remarks on simple relativity and the relative velocity of light" (to be continued) by O. Lodge, 716–719, 748–751—August 25: "Remarks on gravitational relativity" by O. Lodge, 814–818—September 8: Review of *Mediaeval Contributions to Modern Civilisation* (edited by F. J. C. Hearnshaw, London, 1921), 34–35; Review by H. Hilton of W. A. Manning's *Primitive Groups* (Stanford University, 1921) 39 [Last sentence:

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[1] G. B. Mathews, *Theory of Numbers*, 1892, p. 218; he gives in this connection a certain rule, which Legendre in his *Théorie des Nombres* erroneously stated as applying to all cases; Mathews remarks that the rule fails for $p = 61$.

"If the remaining Stanford University publications all come up to the standard of this first number, they will indeed fulfil a useful purpose"]—September 15: "Speech through the aether" by O. Lodge, 88–90.

La Nature, volume 49, June 11, 1921: "La specola vaticana. Observatoire du Vatican" by S. Meunier, 369–374.

Popular Astronomy, volume 29, June–July, 1921: "Sherburne Wesley Burnham" by E. E. Barnard, 309–324 [Portrait frontispiece of Burnham]—August–September, "Arthur Searle" (portrait frontispiece) by Margaret Harwood, 377–381; "Proposed periods in the history of astronomy in America" (to be continued) by W. C. Rufus, 393–404 [Introductory period, 1490–1600; colonial period, 1600–1780; apparently stationary period, 1780–1830; popular period, 1830–1860; new astronomy, 1860–1890; correlation period 1890–. Quotation: "Thomas Hariot, English mathematician and astronomer, accompanied a band of colonists sent out by Raleigh (the second expedition to Virginia) which settled upon Roanoke Island, North Carolina, 1585, and remained about one year. This accorded with the custom of the time, as a scientist frequently was selected and sent out with an exploring or colonizing party. Hariot afterward wrote, 'A Brief and True Report of the New Found Land of Virginia.' His function was that of 'discouverer' and his equipment included mathematical instruments, a sea compass, a loadstone, 'a perspective glass whereby was showed many strange things,' and spring clocks. During his stay in America he recorded the observation of a comet."]

Proceedings of the London Mathematical Society, series 2, volume 20, no. 1, May 26, 1921: "Address by the retiring president: Some problems in wireless telegraphy" by H. M. Macdonald, 51–58 [Address delivered November 14, 1918].

Revue de Mathématiques Spéciales, volume 13, June, 1921: "Sur les développements de cones et cylindres" by M. Chenevier, 489–493.

Revue Générale des Sciences, volume 32, May 15, 1921: Review by P. Boutroux of Girolamo Saccheri's *Euclides Vindicatus*, edited and translated by R. d'Adhemar, 273–275 [First three paragraphs: "M. Bouasse, professeur à la Faculté des Sciences de Toulouse, a placé en tête de son livre sur la *Résistance des Matériaux* une Préface véhémente et qui pourrait provoquer quelque ahurissement. Cette Préface a pour titre: 'De l'inutilité des Mathématiques pour la formation de l'esprit.'

"Nous voici donc en présence de 500 pages bourrées de formules algébriques, de différentielles, d'intégrales, et la Préface de cette théorie physique est de nature à discréditer la science mathématique aux yeux d'un étudiant débutant, comprenant mal la pensée, au tour paradoxal, de l'auteur.

"Je voudrais, non point faire une 'réponse' à M. Bouasse, dont j'admire le grand talent, mais débrouiller ce qu'il dit d'excellent et mettre en garde contre les conclusions fausses qu'on pourrait facilement tirer de ses écrits, si vivants et lumineux."]

Revue Scientifique, volume 59, May 14, 1921: "Projet de calendrier mensuel fixe" by René Baire, 233–240—June 25, 1921: "Théorie spéciale de la relativité" by —. Hondros, 329–337.

Science, new series, volume 53, June 17, 1921: "A decade of American mathematics" by O. D. Kellogg, 541–548 [Address delivered as retiring vice-president of Section A of the American Association for the Advancement of Science, December 29, 1920]—Volume 54, July 8, 1921: "Newcomb on extra-mundane life" by G. C. Comstock, 29–30—July 29: "Thomas Hariot," 85–86 [reprinted from *Nature*]—August 5: "A defense of Professor Newcomb's logic" by W. W. Campbell, 113—August 19: "Mathematics in Spanish-speaking countries" by G. A. Miller, 154—September 2: "On the significance of an experimental difference, with a probability table for large deviations" by A. Bull, 200–202—September 9: "The nature of man" by C. J. Keyser, 205–213 [Address at the annual meeting of the Phi Beta Kappa Society, Columbia University, May 31, 1921]—September 30: "A new definition of pure mathematics" by G. A. Miller, 300–301 [By H. Poincaré in *Acta Mathematica*, volume 39, 1921 (see *1921*, 381)]; "Bibliography of relativity" by F. E. Brasch, 303–304; "Einstein's cosmological equations" by E. Kasner, 304–305.

Science Progress, volume 16, July, 1921: "The operative roots of the circle-function" by R. Ross, 116–132.

Scientific Monthly, volume 12, June, 1921: "The debt of mathematics to the Chinese people" by G. Loria and R. B. McClenon, 517–521 [Translated and condensed by R. B. McClenon from an article by G. Loria in *Bollettino della Mathesis*, April, 1920]—Volume 13, July, 1921: "Hermann von Helmholtz" by L. C. Karpinski, 24–32 [Born August 21, 1821; centennial review of his work]—August: "Swiss geodesy and the United States coast survey" by F. Cajori, 117–129 [Sigma Xi address delivered at Northwestern University, December 13, 1920]—September: "A few questionable points in the history of mathematics" by G. A. Miller, 232–237—October: "Evariste Galois" by G. Sarton, 363–375 [First paragraph: "No episode in the history of thought is more moving than the life of Evariste Galois—the young Frenchman who passed like a meteor about 1828, devoted a few feverish years to the most intense meditation, and died in 1832 from a wound received in a duel, at the age of twenty. He was still a mere boy, yet within these short years he had accomplished enough to prove indubitably that he was one of the greatest mathematicians of all times. When one sees how terribly fast this ardent soul, this wretched and tormented heart were consumed one can but think of the beautiful meteoric showers of a summer night. But this comparison is misleading, for the soul of Galois will burn on throughout the ages and be a perpetual flame of inspiration. His fame is incorruptible; indeed the apotheosis will become more and more splendid with the gradual increase of human knowledge."]

SCRIBNER'S MAGAZINE, volume 69, June, 1921: "Science and style" by G. Sarton,[1] 755–759 [Last paragraph: "A scientific training would slowly inculcate a greater fear of error, a deeper respect for truth, and hence would inspire any would-be writer with a deeper sense of responsibility. Any author should be considered as guilty of indiscretion so long as he had not proved that his knowledge, conviction, and power of expression gave him, indeed, a right to speak. Besides, he should be repeatedly made to realize that the attainment of the highest style implies absolute devotion. One must be ready to spend one's whole substance; anything short of that would be mean. If one does not write with one's own blood, what is the use of writing at all?"]—Volume 70, July: "Giant stars" (with illustration) by G. E. Hale, 1–15; "Mathematics" by Florence Waterbury, 108 [This is the following poem:

"The throbbing heart in Music's breast;
Stern Architecture's soul;
The rope that whirls across dark space
And lassoes flying stars."].

SPHINX-ŒDIPE, volume 16, May, 1921: "Notice sur Charles Ange Laisant" (continued), 65–68 [List of honors and principal writings].

TÔHOKU MATHEMATICAL JOURNAL, volume 19, nos. 1–2, May, 1921: "Ein Mittelwertsatz für Funktionen mehrerer Veränderlichen" by G. Pólya, 1–3; "On the projective description of cyclides" by A. Emch, 4–10; "The circle and the straight line nearest to n given points, n given straight lines or a given curve" by S. Nakajima, 11–20 [First sentence: "Professor Coolidge (*Annals of Mathematics*, vol. 21, 1919, p. 94) proved a theorem concerning the circle nearest to n given points. I will try to replace n given points by a continuous curve, and to find the circle nearest to the curve."]; "On the roots of a polynomial satisfying a certain differential equation of order 2" by K. Oishi, 21–24; "Extension au tétraèdre d'une propriété du cercle podaire" by V. Thébault, 25–26; "Sur l'orthopôle d'une droit et sur les cercles podaires relatifs à un triangle" by V. Thébault, 27–41; "Illustrative examples of domains of rationality and their groups" by G. A. Miller, 42–53; "Die Vergleichung von verschiedenen Definitionen des Krümmungsradius der Kurve" by T. Kubota, 54–64; "Über die kleinsten ganzen Funktionen, deren sämtliche Derivierten im Punkte $z = 0$ ganzzahlig sind" by G. Pólya, 65–68; "Pascal-Brianchon theorems for higher curves and surfaces" by T. Ota, 69–88; "Vector algebra in general relativity" by C. E. Weatherburn, 89–104; "Class numbers and the form $xy + yz + zx$" by E. T. Bell, 105–116; "Note on the summability of the double Fourier's series of discontinuous functions" by K. Shibata, 117–125; "Some problems in a theory of interest, and some integral equations" [in Japanese] by T. Hayashi, 126–135; Shorter notices and reviews, 136–143; Miscellaneous notes, 143–147.

ZEITSCHRIFT FÜR MATHEMATISCHEN UND NATURWISSENSCHAFTLICHEN UNTERRICHT, volume 52, nos. 3–4, March 22, 1921: "Anschaulich-experimentelle Herleitung der Gausschen Fehlerkurve" by G. Pólya, 57–65; "Ueber die Bestimmung der Mondentfernung durch Schwerenmessungen" by H. Teege, 66–72; "Die Konstanz des Winkelverlustes an den Ecken des Polyeders. Eine neue Fassung des Eulerschen Satzes" by K. Bochow, 74–75 [The space analogue of the theorem, "The sum of the exterior angles of any plane polygon is 2π," is "The total angle-loss of all the angles of a polyhedron is constantly equal to 4π", derived from the Descartes-Euler relation]; "Amerikanische Schulmathematik" by H. Wieleitner, 77–78 [mainly a review of *Unified Mathematics* (1918) by Karpinski, Benedict and Calhoun]; "Paul Stäckel zum Gedächtnis" (1862–1919) by W. Lorey, 85–88 [with portrait]—Nos. 5–6, May 20: "Die Mathematik des Lyzeums und Oberlyzeums" by E. Fettweis, 97–103; "Ueber einige Anwendungen des Satzes vom arithmetischen und geometrischen Mittel" by H. Dörrie, 103–108; "Beitrag zur Frage nach der Rationalität der Wurzeln der kubischen und der biquadratischen Gleichung" by H. Greinacher, 113–116; "Oskar Lesser" (1867–1920) by G. Wolff, 131–136 [Biographical sketch, list of publications, and portrait]—Nos. 7–8, July 20: "Beweis des Tsabît für den pythagoreischen Lehrsatz" by the late J. E. Böttcher, and edited by R. Hunger, 153–160; "Anschauliche Beweise für den erweiterten pythagoreischen Lehrsatz" by R. Hunger, 160–167.

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[1] There is an anonymous article, "Sur le style mathématique," in *L'Education Mathématique*, July, 1921, pp. 150, 157–158.—EDITOR.

AMERICAN DOCTORAL DISSERTATIONS.

R. A. Arms, *The notion of number and the notion of class,* Philadelphia, 1917. 74 pp. (University of Pennsylvania, 1917.)

C. C. Bramble, "A collineation group isomorphic with the group of the double tangents of the plane quartic." Pp. 351–365. [Reprinted from *American Journal of Mathematics,* 1918.] (Johns Hopkins University, 1917).

J. A. Bullard, "On the structure of finite continuous groups." Pp. 430–450. [Reprinted from *American Journal of Mathematics,* 1917.] (Clark University, 1917.)

Sarah E. Cronin, *Geometric properties completely characterizing all the curves in a plane along which the constrained motion is such that the pressure is proportional to the normal component of the acting force,* Lancaster, Pa., New Era, 1917. 8 + 34 pp. (Columbia University, 1917.)

W. Van N. Garretson, "On the asymptotic solution of the non-homogeneous linear differential equation of the *n*th order. A particular solution." Pp. 341–350. [Reprinted from *American Journal of Mathematics,* 1918.] (University of Michigan, 1916).

G. H. Hallett, Jr., "Linear order in three dimensional Euclidean and double elliptic spaces," *Annals of Mathematics,* second series, vol. 21, pp. 185–202, 1920. (University of Pennsylvania, 1919.)

E. S. Hammond, "Periodic conjugate nets," *Annals of Mathematics,* second series, vol. 22, pp. 238–261, 1921. (Princeton University, 1920.)

C. M. Hebbert, "Some circular curves generated by pencils of stelloids and their polars." 14 pp. [Reprinted from the *Tôhoku Mathematical Journal,* 1918.] (University of Illinois, 1917.)

H. G. Hotz, *First year algebra scales,* New York City, Teachers College, Columbia University, 1918. 87 pp. (Columbia University, 1918.)

E. P. Lane, "Conjugate systems with indeterminate axis curves," *American Journal of Mathematics,* vol. 43, 1921, pp. 52–68. (University of Chicago, 1918.)

Anne and Elizabeth Linton, *Pascal's Mystic Hexagram, Its History and Graphical Representation,* Philadelphia, Pa., 1921. 4to (12 x 11 in.) 44 pp. + 18 plates—half of which are folding. (University of Pennsylvania, 1921.)

B. E. Mitchell, *Complex conics and their real representation,* Lancaster, Pa., New Era, 1917. 3 + 44 pp. (Columbia University, 1917.)

H. C. M. Morse, Certain types of geodesic motion on a surface of negative curvature. Published as: (*a*) "A one-to-one representation of geodesics on a surface of negative curvature," *American Journal of Mathematics,* vol. 43, 1921, pp. 33–41; (*b*) "Recurrent geodesics on a surface of negative curvature," *Transactions of the American Mathematical Society,* vol. 22, 1921, pp. 84–100. (Harvard University, 1917.)

G. W. Mullins, *Differential invariants under the inversion group,* Lancaster, Pa., New Era, 1917. 22 pp. (Columbia University, 1917.)

F. D. Murnaghan, "The lines of electric force due to a moving electron." Pp. 147–162. [Reprinted from *American Journal of Mathematics,* 1917.] (Johns Hopkins University, 1916.)

J. R. Musselman, "The set of eight self-associated points in space." Pp. 69–86. [Reprinted from *American Journal of Mathematics,* 1918.] (Johns Hopkins University, 1916.)

H. F. Price, "Fundamental regions for certain finite groups in S_4." Pp. 108–112. [Reprinted from *American Journal of Mathematics,* 1918.] (Princeton University, 1917.)

O. J. Ramler, *On the three-cusped hypocycloids fulfilling certain assigned conditions,* Washington, D. C., 1918. 4 + 22 pp. (Catholic University of America, 1918.)

C. H. Rawlins, "Complete systems of concomitants of the three-point and the four-point in elementary geometry." Pp. 155–173. [Reprinted from *American Journal of Mathematics,* 1918.] (Johns Hopkins University, 1916.)

C. N. Reynolds, "On the zeros of solutions of linear differential equations," *Transactions of the American Mathematical Society,* vol. 22, 1921, pp. 220–229. (Harvard, 1919.)